

AO386-C

2449

1 SEP 2010



## RESOLUTION No.

## THE STATE COMPTROLLER GENERAL

## WHEREAS:

[OFFICE OF THE STATE COMPTROLLER GENERAL]

- I. As a result of the study of the special engineering inspection report undertaken on the damages caused to the cooling system and water filters and the assessment of the damages that caused the shutdown of the San Francisco Hydroelectric Power Plant, under the responsibility of the company Hidropastaza S.A., for the period between September 26, 2007, and September 30, 2008, a penalty of **USD 521,587** was assessed against **Consorcio Norberto Odebrecht-Alstom-Va Tech**, through its legal representative, a detail engineering, supplies and construction contractor of the San Francisco Hydroelectric Power Plant, an amount established in Addendum 4, which corresponds to item 3.05 of the "Invoicing Breakdown," for damages that occurred in the cooling water system and seal, due to noncompliance with the technical-mechanical specifications of the contract signed between Hidropastaza S.A. and the Odebrecht-Alstom-Va Tech consortium, which stipulated that the scope of the work includes the detail engineering of the basic project, supply, assembly, construction, testing, commissioning and startup of the work for an amount of USD 286,851,129; it was agreed that 30% of the contract amount would be disbursed on the signature date and monthly payments based on the progress of the work "... in accordance with the physical progress of the Work according to the Invoicing Breakdown (WBS) contained in Attachment 2 to this Document."

Payments based on the progress of the work were made as follows:

**Detail Engineering.** According to the percentage of progress of the work.

**Construction Work.** Based on the percentage of the lump sum corresponding to each part of the work actually performed.

**Assembly, Testing, Commissioning and Startup.** According to the percentages of services performed.

**Supplies.** According to the percentages indicated in Attachment 2 of the EPC contract.

The payments were made as provided by Hidropastaza S.A., issuing disbursement authorizations against the loan obtained with the National Bank for Economic and Social Development, BNDES de Brasil, and with the capital contribution of the partners of Hidropastaza S.A., therefore, when making the payment for the project, 100% of its cost was paid, as is evidenced by the "Explanatory Note on the Expedited Payment Program."

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In the "Invoicing Breakdown" the cost of each of the project's components is detailed, establishing that item 3.05 "Cooling Water and Seal System" has a cost of USD 529,282.

Hidropastaza S.A. and the construction consortium for the San Francisco project entered into Addendum 4 on August 25, 2004, with the purpose of excluding from the contract objective the construction of the Bypass at the Agoyán Plant, modifying the basic design and implementing an expedited work program, the result of which changed the cost of certain components of the project.

Addendum 4 presents the "Invoicing Breakdown," establishing that item 3.05, "Cooling Water System and Seal," has a cost of USD 521,587, with a difference of USD 7,695 from the original contract.

On January 16, 2006, Hidropastaza S.A. and the construction consortium signed Addendum 6 to the EPC contract, with the purpose of carrying out a series of jobs aimed at releasing the Pig (TBM Drill) and making up for the delay caused by this contingency; as a result, the costs of various components of the design were modified, with regard to the cost of the cooling water system, which remains as established in Addendum 4.

Hidropastaza S.A. did not comply with the terms of sections d), e) and g) of number 5.1, "Concessionaire's Duties during Construction," of the general specifications of the second contract modifying the concession contract, for failing to review the studies and detailed designs of the cooling water system, or adopting corrective measures that would guarantee the operation and durability of the equipment protected by this system.

In accordance with the inspections performed by the Comptroller's Office team at the project, it was established that there are technical failures in the construction of the Plant on the part of the consortium for the following reasons:

- The cooling water system optimization was not performed, considering the geological volcanic risks and their influence on the increase in sediment in the Pastaza River, failing to comply with the terms of number 3.2, "Optimization Study" of the EPC contract.
- The filter mesh was not put in, which holds back the particles in suspension identified in number 2.2.1 "Water Conditions," (fine sand with particles from 40 to 150 microns), violating the terms of number 6.4.5 of the mechanical specifications that establish that the water filters, in keeping with specification 6.4.2, will have 150-micron filtering, while the filter selected uses a filter mesh of 760 microns that allows the passage of all particles in suspension carried by the Pastaza river waters.
- The water intake was placed at the inlet of the spirals laterally, at a height of 1.60 m, which failed to comply with number 6.4.3, "Water Intake for the Spirals Inlet," which establishes that the water intake will be located on the upper part of the pipe, downstream from the butterfly valve obturator.

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- Equipment that generates a pressure of 0.7 MPa (7 bar) was installed to flush the water intake screens, failing to comply with the terms of number 6.4.5 "Water Filters for the Spirals," which establishes that the screen flushing pressure will be 2.2 MPa., equivalent to 22 bar.
- The design plan of the SFR-DS8PCE-CMSA-003 Cooling Water System, in Attachment I, Volume 6, "Plans" of the second contract modifying the concession contract, established that motorized valves will be installed before the filters. By failing to consider the sediment entrainment conditions of the Pastaza River, an inappropriate choice of bypass valves was made.

These failures to meet the project's technical specifications were not observed by Asociación Furnas – Integral, the construction inspection company representing Hidropastaza S.A., which, during the project's construction, did not advise of the changes described above by the construction company, without having Hidropastaza's prior authorization, thereby failing to comply with the duties of the inspection n), of number 2, "Inspection Duties," and the terms of the first bullet point of number 3, "Inspection of the Work," from the terms of reference of the Bases of the Invitation for Contracting the Inspection.

In document SFR-HD5ALS-GESE-001 of November 14, 2005, the construction consortium, as part of the detail engineering and construction of the project, presents the technical data for the automatic filters FL-001/FL-02:

OPERATING CONDITION		
Fluid	Raw river water	
Flow	500-1000	m <sup>3</sup> /h
Pressure from	23-30	kgf/cm <sup>2</sup>
Operating temperature	Ambient	°C
Density	1.0	kg/l
Viscosity	1.0	Cp
Degree of filtration	760	Microns
ΔP (clean/dirty)	0.06-0.22 / 0.35	kgf/cm <sup>2</sup>

The cost of the cooling water system and seal, according to the EPC contract and Addendum 1, amounts to USD 529,282, which is modified to USD 521,587 in Addenda 4 and 6 to the EPC contract.

In view of the foregoing, the failure to comply with the contractual technical specifications on the part of the construction consortium led to damages in the cooling water system and seal of the Hydroelectric Power Plant, causing economic loss to the entity in the amount of penalty assessed, a statement of which appears in **Attachment 1** attached thereto.

The following engineers are held jointly and severally liable for **USD 521,587**: Messrs. engineers **Germán Bolívar Anda Naranjo**, Executive President of Hidropastaza S.A., for authorizing payment for the cooling water system; **Asociación Furnas – Integral**, through its legal representative, a contractor from the consulting service for the inspection of the project, and **Marco Antonio Narváez Pinto**, Supervisor of Mechanical Work

for Hidropastaza, for not demanding execution of the work in strict compliance with the contractual technical specifications.

[Paragraphs II and III omitted per special instructions]

**RESOLVES:**

To **DISMISS** the joint and several civil liability established on May 29, 2009, in administrative penalties 5882 through 5884 and 5893, assessed in the amount of **USD 521,587** against Messrs.: **Consortio Norberto Odebrecht–Alstom–Va Tech**, through its legal representative, Mr. **Germán Bolívar Anda Naranjo**, Executive President of Hidropastaza S.A., **Asociación Furnas – Integral**, through its legal representative, the consulting service contractor for the inspection of the project, and **Marco Antonio Narváez Pinto**, Supervisor of Mechanical Work for Hidropastaza.

Notice is ordered given,

For the State Comptroller General,

[Signature]

Dr. Eduardo Muñoz Vega  
Deputy State Comptroller General, Acting

OFFICE OF THE STATE COMPTROLLER GENERAL. A TRUE COPY. I ATTEST.

[Signature]

ACCOUNTABILITY SECRETARY